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ABSTRACT

There is a critical need to introduce today's youths to the characteristics and nature of the diverse worlds with which they consciously and unconsciously interact during the course of a lifetime. Accordingly, this paper describes several ways in which elementary and secondary students can be exposed to world problems and develop global perspectives. Four issues are briefly discussed: (1) population growth, (2) food production: (3) technology development: and (4) environmental quality. For each of these problem areas, a dozen or more related classroom activities are suggested. Also included is a list of 20 selected teaching resources for global education. (Author/WB)

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A VIEW OF TOMORROW'S WORLD: The Need To Develop Student Perceptions Of Global Interdependence And Environmental Stewardship

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ABOUT THE AUTHOR

Dr. Richard Peters was formally educated in the social studies at The University of Maine, The Florida State University, and The University of Rochester (NY).

In 1967, while serving as curriculum researcher with an ESEA Title III project,Dr. Peters became involved with community studies - for purposes of affecting student awareness about surrounding social and natural environments.

During the 1970-1971 school year, as social studies department chairperson, Dr. Peters was involved in the creation of a social studies/science elective course entitled: MAN AND HIS ENVIRONMENT.

From 1973 - 1978, Dr. Peters was administrator/director of an EXPERIMENTAL SCHOOLS (ES) project funded by the National Institute of Education, Washington, DC. For these five years, Dr. Peters was directly involved in the development/delivery/evaluation of a Kindergarten through grade twelve environmental education program; Student Environmental Awareness (SEA).

In 1979, Dr. Peters created a one semester, elective course entitled PEOPLE IN THEIR ENVIRONMENTS.

Dr. Peters has been published in Environmental Education Report, The Journal of Environmental Education, Resources In Education (ERIC), and by the National Council for the Social Studies in its HOW TO DO IT SERIES (#28): "How To Teach About Human Beings and Their Environment". He has also been a program development consultant to several regional environmental education projects.

INTRODUCTION

If present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now. Serious stresses involving population, resources, and environment are clearly visible ahead. Despite greater material output, the world's people will be poorer in many ways than they are today.[1]

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[1] Excerpt from the Global 2000 Report to the President. Council on Environmental Quality, 1980.

As human beings have developed more highly technical and sophisticated tools, they have (over the course of recorded history) developed the capability of manipulating the environmental surroundings. Humans have advanced from life space environment adaptation to molding environments into desired images and shapes.

Worldwide, the sanctity of nature has often been violated in a flippant manner. Respect for the creations and beauty of nature has frequently been ignored. In short, individuals, vested interest groups, and levels of government have tended to select short-term economic gains, often at the expense of greater long-term environmental benefits.

If man's perceptions of global interdependence and survival among and between human/non-human life space phenomena are to be developed, there is a critical need to introduce today's youths, tomorrow's decision makers, to the characteristics and nature of the diverse worlds with which they consciously and unconsciously interact during the course of a lifetime.

Shirley Hufstedler, Director of the United States Department of Education, has stated that "it is the responsibility of our educational institutions to develop, refine, and introduce global perspectives into our curricula ... so that our future leaders will have realistic understandings of what the world is about, and so that peaceful and just life on the planet will be possible. There are several ways by which elementary and secondary grade students can be exposed to the world about them, and can develop global perspectives about

human population growth and distribution, food production, technological development, and environmental protection.

WORLDWIDE POPULATION GROWTH AND DISTRIBUTION

Today, human population growth and distribution, over the surface of the Earth, is a serious social problem. As noted at the Leadership Conference On Population, Resources, and Environment (Washington, DC January 23, 1981), rapid population growth worldwide is a major factor contributing to resource and energy shortages and to environmental damage which may become irreversible in the next twenty years, unless current policies and programs change. The world cannot sustain continued rapid population growth and wasteful resource consumption without further widespread suffering and catastrophic dislocations. It is essential that the United States cooperate with other nations to achieve a balance between the world's people and the capacity of our common ecosystem to sustain them.

If an uncontrolled human population explosion is allowed to continue, unchecked, it is estimated that the world's human family will total approximately six and one-quarter billion people! The concentration and growth of human numbers in a given geographical region affect the quantity and quality of food and water supplies as well as employment opportunities, economic welfare, and shelter.

An important part of any school's social studies curriculum should be a third world oriented course which provides students with opportunities to develop understandings about cultural diversity and diffusion among the various nations of the world and their peoples. Harland Cleveland, Director of the Bureau of International Affairs, The Institute for Humanistic Studies, Princeton University, has stated that there is a necessity to focus our academic and intellectual resources on the issue of maximizing the possibilities for human and intelligent living in a world marked by accelerating populations, widespread terrorism, starvation on a massive scale, increasing liklihood of nuclear holocaust, disintegration of virtually all traditional values in our current political system - all of this tells us that we must train our educational priorities away from parochial concerns and perspectives, and toward a more global and interdependent outlook.

Population education should be an integral part of a third world course. It is an organized attempt to create personal perceptions of the consequences of demographic changes; an attempt to develop student 1) awareness of individual-family-societal-environmental effects on the increase in human numbers, 2) understanding of the effects rapid shifts in the concentration and distribution of people have upon the environment, and 3) sensitivity to ways of affecting attitudes and values regarding the relationship(s)

among and between human beings and other life space phenomena.[2]

I. Students can apply their language arts and social studies research skills in the development of charts and graphs. Mathematics skills can also be applied to plotting points on scaled charts and graphs. As a result of group research, students can develop the following types of visuals for presentation to the class - as part of an oral report.

Percent of World's Population and Gross National Product (GNP) by Selected Regions (1980)

Region	Percent of World's Population	Percent of World's GNP
Africa	10	3
Far East	35	14
Middle East	3	3
North America	6	28
Oceania	1	2
South Asia	18	2
South America	5	3

(Source: United States Bureau of the Census)

[2] Richard O. Peters, "How To Teach About Human Beings and Their Environment," HOW TO DO IT SERIES (#28), National Council for the Social Studies (Washington, DC) 1976. Page 2.

Estimate of Population Growth (1975-2000)	
Bangladesh	100%
Brazil	108
India	65
Indonesia	68
Japan	19
Nigeria	114
People's Republic of China	42
United States	16

(Source: The Global 2000 Report to the President)

II. Students can select different nations of the world and develop reports re culture, history, and life styles. This activity enables students to become better acquainted with diverse societies and their people.

III. Students make both regional maps and worldwide maps, and they plot population figures for given nations. These visuals can be used in conjunction with class reports and instruction.

IV. Films and other visual materials can be screened in classrooms - in order to introduce students to diverse cultures and races. Emphasis should be on developing student perceptions about human population similarities and differences - worldwide.

V. Guest speakers who have visited or lived in overseas countries discuss their experiences and 'life' in foreign lands.

VI. Students write to the United Nations World Health Organization (WHO) for demographic data which can be used in the development of reports.

VII. In the elementary grades, students read books about people in foreign lands and how they live. In some instances, teachers read books aloud to the class(es).

VIII. Students research the topic of world population and develop a series of 'population explosion solution' hypotheticals.

IX. Students investigate the several international organizations which conduct planned parenthood programs in foreign countries.

X. Foreign exchange students visit classrooms to discuss population 'problems' in their homelands.

XI. Students select countries of the world and make population density maps.

XII. Students draw variations of the political cartoon concept to depict the population crisis - by selected countries and worldwide.

When teaching population growth and distribution, as well as food production - technological development - environmental quality, there is a need to create a 'mix' of direct, hands-on experiences with vicarious activities in order to develop a learning environment in which students begin to perceive relationships between human beings and other creations of nature. A well-planned and organized exposure to global studies (in all subject matter areas) throughout the several grades; elementary and secondary, will provide opportunities for students to learn introductory content and skills, and to enrich and/or reinforce that content or those skills through 'practical application' activities and experiences.

FOOD PRODUCTION

In 1798, Thomas Malthus generated his arithemetic-geometric progression theory of food production and human population growth. Today, in many parts of the world, malnutrition - undernourishment - starvation are clear-and-present dangers to human survival. Although world food production has markedly increased over the past few decades, it has not kept pace with uncontrolled population growth, nor has equal distribution of available food been achieved on a worldwide basis. The world is still faced with the 'have' and the 'have-not' nations.

Modern technology and advanced crop production techniques have been used successfully to create strains of high yield rice and wheat, and synthetic nutrients have been developed which promote rapid crop growth. The 'green revolution' has resulted in the ability to feed people in both the developed and less-developed nations, but still approximately two-thirds of the world's food supply is consumed by the developed nations. The total human numbers in these nations represents only one-third of the world's population!

Activities which involve the several subject matter areas of the school curriculum can be incorporated into the third world study program.

I. Students visit a modern farm to learn about modern agricultural techniques. Students can document their visits on film or video tape.

II. Students research topics such as the 'green revolution' and develop reports.

III. In mathematics classes, students compute the amount of food needed (to provide a daily balanced diet) to feed the population of a selected nation of the world.

IV. Students research annual United States crop production and the quanities of food which are exported to various nations, yearly.

V. Students cook dishes from several different nations and serve a 'foods-of-the-world' banquet.

VI. Students research the contributions of the Peace Corps, CARE, and the International Red Cross to underdeveloped nations of the world.

VII. Audiovisual materials dealing with 'hunger' are screened in classrooms - in order to expose students to the seriousness of the problem.

VIII. Using a list of countries facing the 'hunger' crisis, students locate each on a wall map or on a globe.

IX. Students draw variations of the political cartoon concept which depict the 'hunger' problem in selected countries and worldwide.

X. Students research the use of chemical fertilizers and pesticides to effect high yield crop production.

XI. Guest speakers who have undertaken agricultural production work in foreign nations visit classrooms to discuss their experiences.

XII. Foreign exchange students visit classrooms to discuss the 'hunger' crisis.

XIII. Students research and role play a world hunger conference. This activity can be filmed or video taped for screening at a later time.

TECHNOLOGY DEVELOPMENT

Technological 'know how' has given humans the ability to effect relationsnips among and between life space phenomena. Advanced technology can help people solve their most-complexing problems as well as affect their ways-of-living and decision-making processes.

Technology can be used to narrow or widen the 'quality-of-life' gap between developed countries and less-developed nations of the world. Sociologists have divided the world into three categories; 1) the highly industrialized nations, 2) the centrally planned countries, and 3) the developing countries. Technology can be used to solve problems in agriculture, industry, and medicine or to create new dilemmas for humankind to ponder and solve.

Technology is merely a tool of humans. It should never be perceived as the master of humans! It can be used for good or evil, and has tremendous effect upon the production and distribution of goods and services for human consumption and use. Technology can be used merely to fulfill man's basic needs or used to create standards-of-living and life styles which enrich human existence on Earth. In short, technology can have a dramatic effect on life styles, values, and the behavior

of individuals, groups, and whole societies.

I. Students research the development and growth of the Industrial Revolution and its effects upon national economies and human life styles.

II. Students select types of technologies which interest them and develop reports regarding the history of technology and its effects on national development and life styles in selected countries.

III. Students take field trips to factories and mills to observe mass production processes and the types of work people do in those settings. These tours can be filmed or video taped. Later, students research the types of technology seen on the tours.

IV. Films and other audiovisual materials which depict the use of modern technology in less-developed countries are screened in the classroom.

V. Students investigate the activities of UNICEF to bring modern technology to less-developed nations of the world.

VI. Students study United Nations Environment Program projects which investigate modern technology's contributions to worldwide pollution.

VII. Students investigate how the introduction of modern technology into a less-developed nation can positively affect both educational and employment

opportunities for the populace.

VIII. Using research data, students identify specific types of technology and locate where each can be found (country-by-country) on world maps.

IX. Students research the ways modern technology can be used, worldwide, to solve environmental pollution problems.

X. Students collect newspaper and magazine articles and cartoons related to technology. A bulletin board display is made.

XI. Students study case studies of ways modern technology is introduced into less-developed countries, exploration for oil and other natural resources, mass production of goods for exportation to other countries, and military installations.

XII. Students visit technical-vocational training institutions to learn more about education programs in 'high technology' fields.

XIII. Guest speakers who have worked as 'high technology' advisors and consultants in less-developed countries discuss their experiences.

XIV. Students establish an assembly line to mass produce a selected product. They study topics such as 'division-of-labor', interchangeable parts, mass production, and profit. This activity can be filmed or video taped for later screening in the classroom.

ENVIRONMENTAL QUALITY

Human beings have begun to realize that they cannot survive on the face of the Earth, alone! They are biologically and socially dependent upon other phenomena in nature for substance and existence. Our concern must not be limited to the human condition; rather, we must give serious attention and consideration to the countless thousands of other forms of life that directly and indirectly affect the quality of human life.

The principle reason for controlling pollution is to protect human health and the ecological integrity of man's life support systems. [3] The Mediterranean Sea is primarily threatened by two types of pollution; sewage from human wastes and toxic industrial chemicals. The same tale-of-woe is true for the Great Lakes, countless lesser lakes and rivers around the world, and the great seas and oceans. Concern must be given to, and action taken regarding, clean air and water, the proper disposal of solid wastes, monitoring noise levels, and control of the use of pesticides.

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[3] Pollution and Your Health. Environmental Protection Agency, Washington, DC, May 1976. Page 2.

Individuals must develop attitudes of environmental stewardship, and be willing to conserve - manage - and protect nature's resources in ways which best serve the interests of humans and nature, alike.

Several different activities, involving different subject matter areas of the curriculum, can be incorporated into the instructional process.

I. From a list of endangered species, students select plants and/or animals of interest to them and conduct research studies.

II. Students view audiovisual presentations re endangered species, and attempt to answer the question: why? . They propose ways by which world governments and international organizations can save nature's creatures.

III. Students investigate the activities of the NATURE CONSERVANCY, UNITED NATIONS ENVIRONMENT PROGRAM, the ENVIRONMENTAL PROTECTION AGENCY, the AUDUBON SOCIETY, etc.

IV. Students visit pollution sites to observe the harmful effects of air - water - noise - solid waste pollution.

V. Guest speakers discuss how pollution can be controlled and treated.

VI. Students study the geography of selected countries and research land use policies in those countries.

VII. Students collect data on examples of worldwide pollution. This data is plotted on wall maps.

VIII. Students create vocabulary crossword puzzles related to their global studies.

IX. Students play environmental quality games and simulations.

X. Films and other audiovisual materials which depict the status of worldwide environmental quality are screened in the classroom.

XI. Students research policies and practices re natural resources conservation and management in selected countries.

XII. Foreign exchange students visit classrooms to discuss pollution problems and solutions in their native countries.

As human beings have developed highly technical societies, they have devised tools and techniques by which they can alter the natural ecosystems, change

the course of rivers, and clear as well as reclaim the land. It is only recently that humans have begun to realize that their actions have led to pollution of the air that all of us breathe and the water that we drink, the destruction of natural geographical phenomena, and the uncontrolled increase in human population.

STATEMENT

Environmental problems do not stop at national boundries.[4] Irregardless of where we live, we are all traveling on 'Spaceship Earth' - together! Whatever happens to some of us effects all of us. Whatever happens to part of the world effects all the world. In September 1980, Philip Secor stated that ever since we went to the moon in 1968 and had our first view of the entire planet, we should have begun to understand the implications of its smallness and fragility, and of the interdependence of peoples and resources on the earth.

Man's technology does not permit any of us to be 'islands unto ourselves' any longer. All human beings are interrelated and interdependent. Thus, we cannot afford to generate or make global decisions based upon 'either/or' theories regarding human beings/natural qualities or regarding 'have/have not' nations of the world. We must begin to think - plan - act in terms of humans and nature and humankind rather than in terms of humans or nature and have versus have not nations and peoples.

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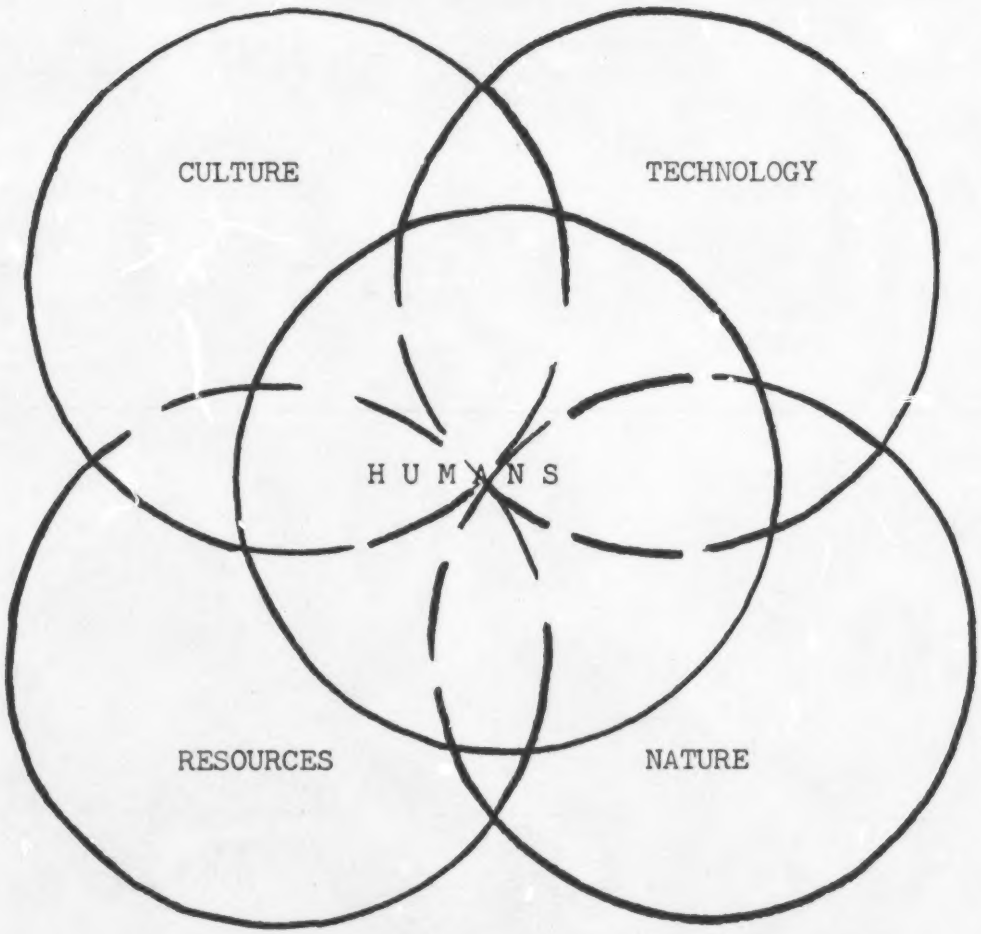
4 Richard O. Peters, "The NEW Spirit of St. Louis," Environmental Education Report, Center for Environmental Education, Inc., December/January 1977. Page 11.

Our global goal should be the development - promotion - inculcation of four freedoms [5] into man's social order: 1) Freedom for everyone to participate in recreational activities and to enjoy clean/healthy environments, 2) Freedom to survive as individuals and as a collective totality within natural and social environments, 3) Freedom of self determination as a species, and 4) Freedom from want regarding clean air - clean water - food - adequate living space.

As cultures have become more advanced and complex, technological advances in communication and transportation have provided for more human interaction and exchange -- thus resulting in greater interdependence.



Constant interaction among and between life space factors results in greater interdependence.

One constant consideration of global perspective studies should be the development of the interdependence between humans and their social world(s) with nature concept in the minds of students. An understanding of

interdependence can be achieved with an instructional strategy of exposure and involvement which is carefully planned, supplemented with varied activities and hardware/software, and is sequential (on-going) throughout the several grades. What is learned in one grade should be applied and reinforced in the upcoming grades.

The local environment (which often serves as a microcosm of the 'world') must be incorporated into the instructional process - thus providing students with opportunities to relate directly to/with abstractions and concepts which are generated within the confines of the classroom.

According to Noel - David Burleson, an internationally acclaimed expert in population research, education can become an agent of change (regarding attitudes and knowledge about population dynamics) by developing population awareness among teachers and students. Population awareness is the key concept with which we must deal in presenting our knowledge and concern about population problems. Educators and students should have a factual knowledge of population dynamics in order to understand

the nature and magnitude of the burdens the population explosion imposes. Teachers and students should consider a variety of attitudes against which and with which they can measure their own attitudes. [5]

Environmental education programs should attempt to develop and affect the individual's attitudes about and concern for the state of the environment. This task can, in part, be accomplished by focusing attention on those problems which directly affect both the quality and role of human beings' environment(s) in the totality of an ecological community. Environmental education programs which focus on student attitudes toward the environment with an emphasis on outdoor activities, utilizing natural and social community environments as learning laboratories, are probably more effective than most programs. Attention should be given to two general areas of environmental problems:

A. Problems of the natural, physical environment involving aesthetic and physical qualities as well as the quantity of natural resources:

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5 Noel-David Burleson, Population Awareness in Secondary Education, 1968, Pages 1-2 . Used with permission of the author in "How To Teach About Human Beings and Their Environment", HOW TO DO IT SERIES, National Council for the Social Studies, 1976 (Richard O. Peters).

1. air pollution
2. mining of natural resources
3. open space for recreation and wildlife
4. plant and wildlife disease
5. water pollution

B. Problems of human-made environments:

1. air pollution
2. noise pollution
3. water pollution
4. population growth and distribution
5. community services
6. traffic congestion
7. litter and solid waste disposal

Through study of these problems, students should develop an understanding of:

a. the environment
b. humans' relationship(s) to the environment
c. environmental problems
d. ways to solve or prevent problems

e. large population concentrations in urban centers

f. pressures created by an advanced way-of-life, characterized by affluence, leisure time, good health and medical care, increased longevity, mobility, and advanced technology.

SELECTED RESOURCES

BOOKS

Environmental Concerns: The World, by George Peter Gregory, Chicago: Harcourt-Brace-Jovanovich, Inc., 1977. Student textbook which deals with "Quality of the Environment", "Stresses in the World Environment", and "The Choices Ahead". Complete with chapter review questions and activities.

Introduction to Demography, by Mortimer Spiegelman, Cambridge (MA): Harvard University Press, 1968. Discussion of topics related to population size, control, and measurement.

Introduction to Environmental Studies, by Jonathan Turk, Philadelphia: W. B. Saunders, 1980. An introduction to and discussion of topics such as the ecology of natural systems, population changes and the human condition, and pollution. Complete with take-home experiments and 'problems' for students.

Population and History, by E. A. Wrigley, New York: McGraw Hill, 1969. Review of historical demography with emphasis on the population growth of preindustrial societies.

Progress and the Environment, by James P. Shaver, Boston: Houghton Mifflin Company, 1973. Indepth look at contemporary air/water pollution problems facing the United States and the world. Complete with case studies.

Seeds of Change: The Green Revolution and Development in the 1970's, by Lester R. Brown, New York: Praeger Publishers, 1970. An indepth investigation of the Green Revolution and food production in the future.

Technology, World Politics, and American Policy, by Victor Basiuk, New York: Columbia University Press, 1977. Discussion of past and future trends regarding technology in both industrial and developing nations.

The Closing Circle, by Barry Commoner, New York: Bantam Books, Inc., 1971. A critical look at the environmental problems facing the world and discussion of what is needed to solve them - and save the Earth.

The Developing World: Poverty, Growth, and Rising Expectations, by James D. Calderwood, Glenview (IL): Scott, Foresman and Company, 1976. Soft covered text dealing with topics such as living in a poor country, understanding the developing countries, world population problems, and nature's bounty - natural resources. Complete with end-of-chapter review questions and student activities.

The Population Bomb, by Paul R. Ehrlich, New York: Ballentine Books, 1968. An alarming discussion of the uncontrolled human population explosion and the threat to Planet Earth.

The Uncertain Promise: Value Conflicts in Technology Transfer, by Denis Goulet, New York: IDOC/North America Inc., 1977. A searching study of the impact of technology on human values in developed and less-developed countries.

FILMS

Air Pollution. Encyclopaedia Britannica Educational Corporation, Chicago, IL. Grades 6 - 12.

Face of the Earth. King Screen Productions. Grades 8 - 12. Deals with pollution problems.

Inherit the Earth. Bay Area Educational Television Association, San Francisco, CA. Grades 4 - 6. A series of fifteen, 20 minute lessons related to science, ecology, and the social studies.

Population Ecology. Encyclopaedia Britannica Educational Corporation, Chicago, IL. Grades 9 - 12.

Population Explosion. McGraw-Hill Films, Boston, MA. Grades 9 - 12. Topic: population dynamics.

FILMSTRIPS

An Introduction to Ecology: Six Basic Systems. Eyegate House, Inc., Jamaica, NY. Grades 3 - 8. A series of six filmstrips - with captions.

Aggradation - Degradation. Eyegate House, Inc., Jamaica, NY. Grades 7 - 12. A series of four filmstrips - with captions.

Concepts in Ecology. Centron Educational Films, Lawrence, KS. Grades K - 9. A series of four filmstrips - with captions.

Ecology: Exploration and Discovery. United Learning, Niles, IL. Grades 5 - 8.